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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER	
			MULLER, BRYAN R	
			ART UNIT	PAPER NUMBER
			3723	
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			07/03/2008 PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/566,921

**Applicant(s)**

IMAMURA ET AL.

**Examiner**

BRYAN R. MULLER

**Art Unit**

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1 and 2 are objected to because of the following informalities: the applicant claims that the plurality of guide pieces are twisted into a screw shape. However, the term "screw shape" may be interpreted in many different ways but it appears that the shape being formed by the plurality of guide pieces, as disclosed in the specification and shown in the drawings does not clearly correspond to the shape of a screw. The structure formed by the plurality of twisted guide pieces does not include a shaft, threads or a head, all of which are commonly known structures defined by a screw and the drawings do not even appear to show the guide pieces as having a general helical shape defined by the threads of a typical screw. Therefore, it is suggested that the applicant amend the claims to more accurately define the shape formed by the plurality of twisted guide pieces. For the sake of the current Office Action, the Examiner will consider the term "screw shape" to broadly define a general shape having curved surfaces that is capable of imparting a spiral flow to air passing therethrough. Appropriate correction is required.

2. Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The only structures that claim 5 includes is relative to a solenoid valve that is connected to an air supply source

to control air flow to the nozzle. However, the solenoid valve itself is not considered to be part of the nozzle that is being claimed. Therefore, the claim fails to provide any further structure to the actual nozzle.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim attempts to define the structure of the nozzle being claimed based solely on the structure of a machined hole, for which the nozzle is intended to be used and based on the intended function relative to the machined hole. However, the machine hole is not part of the claimed apparatus, nor is the machined hole provided with any defining structure in the claims that would positively provide structure to the apparatus, as claimed. Thus, the scope of the claim is unclear because the structure of the machined hole is not clearly defined in such a way as to clearly provide structure to the nozzle. It is suggested by the Examiner that the applicant amend the claim to define the structure of the nozzle by describing the actual structure of the nozzle instead of relating the intended function relative to the machined hole.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Rider (1,893,210).

7. In reference to claim 2, Rider discloses a nozzle that is inherently capable of having air blown therethrough to remove residue such as chips from an interior of a machined hole, the nozzle comprising a distal end portion that is inherently capable of being inserted into a machined hole and a spiral flow creating portion (20) that is provided in the nozzle distal end portion and changes a flow of air that is flowing inside the nozzle into a spiral flow (as shown in Fig. 1), wherein the spiral flow creating portion has a plurality of guide pieces (22) that are formed at the distal end portion of the nozzle and are twisted into a screw shape. The term "twisted" in the claims appears to be a Product-by-process limitation, attempting to define the structure based on the method by which it is made. However, in such Product-by-process claims, the claimed structure is only limited to the structure implied by the steps (see MPEP 2113). The structure of the guide pieces (22) disclosed by Rider would clearly be capable of production by twisting flat pieces into the twisted shape and attaching them to the inside of the nozzle (11). Therefore, the guide pieces of Rider anticipate the structure that is implied by the step of twisting the guide pieces.

8. In reference to claim 4, the nozzle of Rider is shown as forming a spiral flow in the opposite direction that the applicant discloses as providing a flow that turns in the same direction in which the thread is loosened. However, the nozzle of discloses inherently capable of being used to remove chips from a female threaded hole that has a reverse thread, in which case, the spiral flow will be in the same direction in which the reverse thread is loosened.

9. In reference to claim 5, as discussed supra, the claim does not further limit the structure of the nozzle being claimed. However, the nozzle of Rider would be inherently capable of having a solenoid valve attached thereto to open or close the flow of air from an air supply source.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haruki (JP 2002-361192) in view of Rider (1,893,210).

12. In reference to claim 1, Haruki discloses a chip removal method for removing residue such as chips that have remained in and adhered to an interior of a bag-shaped hole in a workpiece, the method comprising providing an air blow nozzle with a spiral flow creating portion in a distal end portion thereof, wherein the spiral flow creating

portion has a plurality of guide pieces that change the air flow into a spiral flow and directing air that is jetted out of the nozzle against a bottom portion of the hole, wherein the air jetted out and directed against the bottom portion of the hole will inherently blow upward like a tornado from a vicinity of the bottom portion of the hole in a direction toward an aperture portion of the hole so that the residue inside the hole is uplifted by the spiral flow and removed (as shown in Fig. 5, the air will blow upward from the bottom of the hole, and due to the spiral flow out of the nozzle, the upward flow will inherently maintain a similar spiral flow, like a tornado). Although Haruki does not specifically disclose that the hole is a machined hole in the workpiece, the claimed method step does not include the step of machining the hole. Therefore, the method steps disclosed by Haruki, when applied to any hole having chips therein will be equivalent to the chip removal method from a machined hole. Further, Haruki does disclose that the chips are present as cutting remains (paragraph 2 of the Detailed Description translation), wherein cutting is most likely considered to be a machining step, thus it could be assumed that the process disclosed by Haruki is intended for a machined hole. However, Haruki fails to disclose that the spiral flow portion of the air blow nozzle has a plurality of guide pieces that are twisted into a screw shape to change the air flow into a spiral flow. Rider discloses the nozzle as discussed supra, wherein the spiral flow creating portion has a plurality of guide pieces (22) that are formed at the distal end portion of the nozzle and are twisted into a screw shape and Rider discloses that the nozzle provides a spiral motion to material passing through the nozzle. Thus, it would have been obvious to one of ordinary skill in the art, that both the

nozzle disclosed by Rider and the nozzle disclosed by Haruki provide equivalent functions of altering the flow into the nozzle to a spiral flow out of the nozzle. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the nozzle of Rider may alternatively be used in place of the nozzle of Haruki, as being known equivalents in the nozzle art, to provide a spiral airflow into the bottom of a machined hole to remove chips from the hole.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rider (1,893,210) in view of Bete (2,518,116).

14. In reference to claim 6, Rider discloses the nozzle, as discussed supra, and further discloses that the plurality of guide pieces comprises three notch portions, wherein the three notch portions are formed at 120° intervals in the nozzle distal end portion (as seen in Fig. 4). However, Rider fails to disclose the specific angles that the notch portions are inclined relative to the axial direction of the nozzle or the lengths of the notch portions. However, it would have been obvious that the nozzle may be provided in different sizes for different applications, wherein at least one size for the nozzle may include the notch portions at a length between 4 and 6 millimeters. Further, Bete discloses a similar nozzle that comprises a spiral flow creating section to change the flow through the nozzle into a spiral flow. Bete further teaches that variations in the type and character of the spray may be had by varying the lead or pitch of the helical vane (similar to the helical vanes 22 of Rider) or the angle and shape of the helical vane (Col. 1, lines 29-37), thus teaching that the angle and length of such vanes are result



effective variable for spiral flow producing nozzles. The applicant fails to provide any evidence of criticality or unexpected results that are produced by the claimed incline of 30° to 45° relative to the axial direction of the nozzle or the lengths between 4 and 6 millimeters. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, through routine experimentation to provide a desired flow through the nozzle of Rider, to modify the angle of the vanes (22) of Rider relative to the axial direction of the nozzle and to modify the lengths of the vanes (12) of Rider, as taught by Bete as being result-effective variables (see MPEP 2144.05 Paragraph II). Thus, the claimed ranges of the angle and length for the notch portions (vanes 12) would have been obvious through routine experimentation.

### ***Response to Arguments***

15. Applicant's arguments with respect to claims 1, 2, 4 and 5 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pepper (1,205,563), Bete (2,804,341) and Buelna et al. (1,504,864) all disclose nozzles having similar structure and/or function as the applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN R. MULLER whose telephone number is (571)272-4489. The examiner can normally be reached on Monday thru Thursday and second Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail III can be reached on (571) 272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bryan R Muller/  
Examiner, Art Unit 3723  
7/1/2008